

# *Lawrence Berkeley National Laboratory*

*A presentation to SC 2005 Facilities & Infrastructure  
Workshop Group*

*Integrated Facilities Condition Management Initiative at  
Lawrence Berkeley National Laboratory*

*6.08.05*



# ***Integrated Facilities Condition Management Initiative***

## **Goals**

Support UC Strategic Management Initiative

Implementation of a Comprehensive, Integrated Facilities Assessment, Analysis, Planning, Work Execution, and Reporting System

Implement an ongoing system of identification and prioritization of capital repair projects

Reduction of Deferred Maintenance and Asset Lifecycle/Capital Renewal within LBNL

## **Project Design Key Elements**

Incorporates two premier providers of Web-based software solutions and consulting services companies, Vanderweil Facility Advisors (VFA) and MRO MAXIMO

Reports to the DOE Facilities Information Management System (FIMS)

Align Facilities Maintenance Projects and Business Goals with Scientific Priorities

# ***Integrated Facilities Condition Management Initiative***

## **Objectives**

Develop accurate and defensible Replacement Plant Values (RPV)

Create a central location for the storing of facility and infrastructure condition data

Improve our approach to properly manage our facilities assets in a more pro-active manner

Develop a process of generating DM project scopes and consistent budget estimates

Improve the accuracy of forecasting future capital renewal and maintenance needs

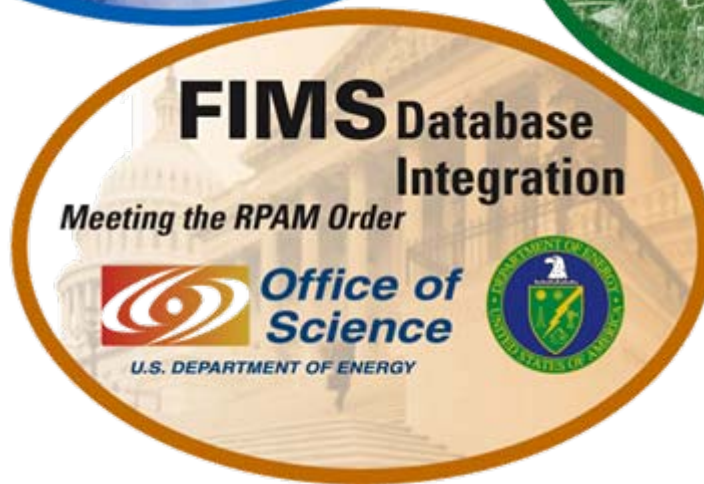
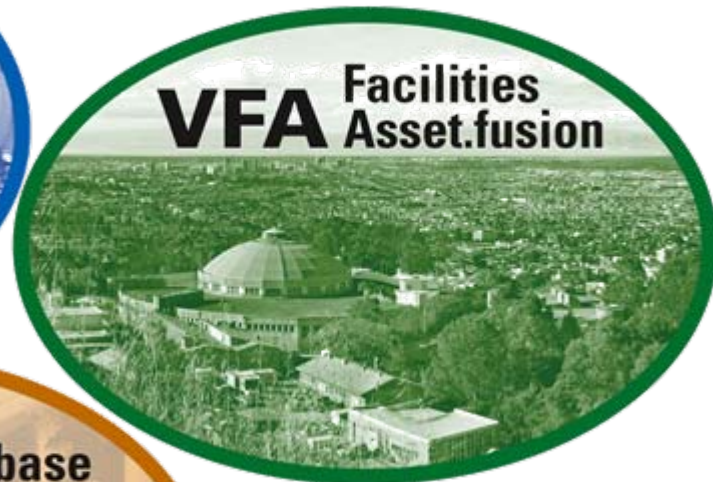
Create a tool for organizing and prioritizing all deficiency corrective measures using standardized criteria

Develop of a five-year or longer capital renewal model that shows the needs versus available funding and the resultant FCI

Comply with the DOE Real Property Asset Management (RPAM) and FIMS User Guidelines for reporting Asset information

# TOTAL INTEGRATION

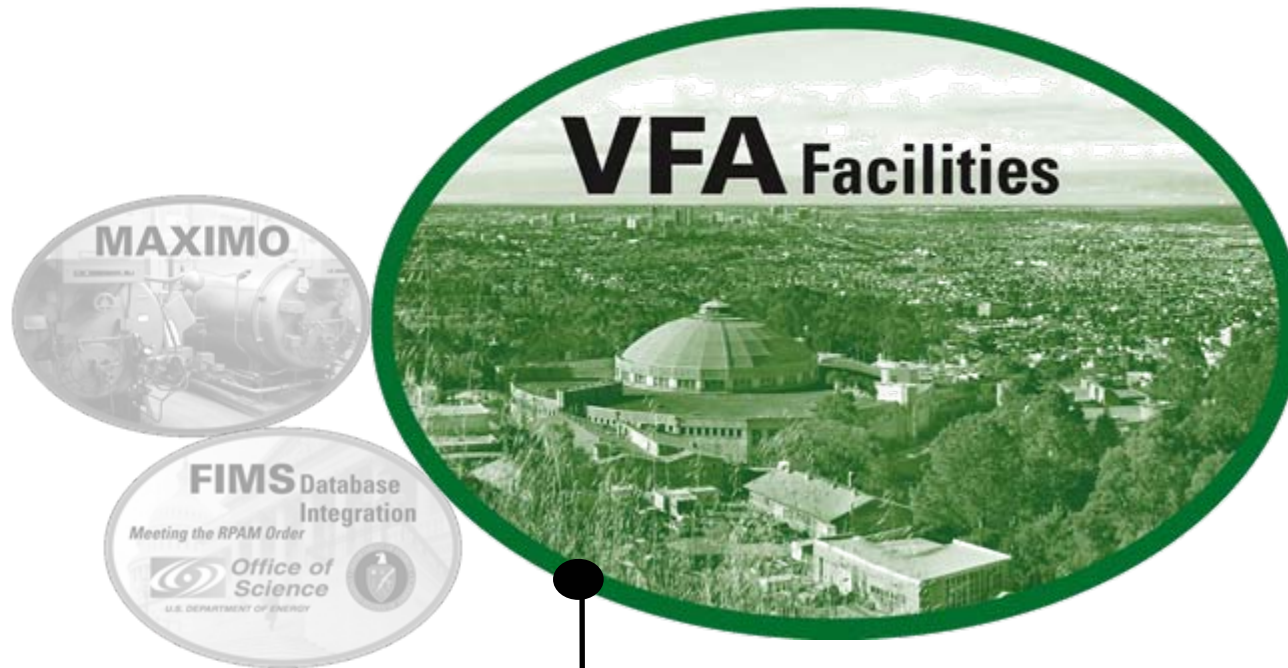
Business Process — Facilities Capital Planning — Work Management, and FIMS





# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



Facility Cost  
Model and Life  
Cycle Developed  
by Unifomat II  
Categories

# Anatomy of a Cost Model

Broken down by UNIFORMAT II Category. Hierarchy down to Level 4

Lifecycles as prescribed by BOMA, ASHRAE, Whitestone, Client

Cost Requirements provided by RS Means, Client Historical Data.

% Renew reflects the percentage of system is replaced at the end of its life.

Curve type sets the funding period around the end of life of the system/component

Uniformat Category	Name	Lifetime	Cost/Unit	% Orig Cost	% Renew	Curve Ty
A - Substructure		75	16.55	9.01	5.00	Spiky 25
B10 - Superstructure		75	16.55	9.01	5.00	Spiky 25
B2010 - Exterior Walls		75	11.75	6.40	5.00	Spiky 25
B2020 - Exterior Windows		30	5.45	2.97	100.00	Spiky 25
B2030 - Exterior Doors		30	2.09	1.14	100.00	Spiky 25
B30 - Roofing		20	4.58	2.49	100.00	Spiky 25
C1010 - Partitions		50	5.32	2.90	65.00	Spiky 25

# Cost Estimating In VFA.facility – RS Means

RSMeans Estimator - Microsoft Internet Explorer provided by VFA, Inc.

**Categories**

☒ Imperial Unit Price    ☐ Assemblies  
☐ Metric Unit Price    ☐ Renewal Assemblies  
☐ General Maintenance    ☐ Equipment Rental  
☐ Labor    ☐ Metric Equipment Rental

**Search**

Search

Level 1    Level 2    Level 3    Level 4

07000000 Thermal & Moisture  
 08000000 Doors & Windows  
 09000000 Finishes  
 10000000 Specialties  
 11000000 Equipment  
 12000000 Furnishings  
 13000000 Special Construction  
 14000000 Conveying Systems  
 15000000 Mechanical

15050000 Basic Materials & M  
 15100000 Building Services P  
 15200000 Process Piping  
 15400000 Plumbing Fixtures &  
 15500000 Heat Generation Eq  
 15600000 Refrigeration Equip  
 15700000 Heating/Ventilating  
 15800000 Air Distribution  
 15900000 HVAC Instrumentat

15106000 Glass Pipe & Fittings  
 15107000 Metal Pipe & Fittings  
 15108000 Plastic Pipe & Fittings  
 15110000 Valves  
 15120000 Piping Specialties  
 15140000 Domestic Water Pip  
 15150000 Sanitary Waste and  
 15160000 Storm Drainage Pip  
 15170000 Swimming Pool and

15110100 Valves, Brass  
 15110160 Valves, Bronze  
 15110200 Valves, Iron Body  
 15110300 Valves, Lined, Corrosi  
 15110400 Multipurpose Valves  
 15110500 Valves, Plastic  
 15110600 Valves, Semi-Steel  
 15110700 Valves, Steel  
 15110800 Valves, Stainless Steel

151102000116 Valves, angle, iron body, 125 lb flanged, 2" size  
 151102000118 Valves, angle, iron body, 125 lb flanged, 4" size  
 151102000120 Valves, angle, iron body, 125 lb flanged, 6" size

Means Item Detail - Microsoft Internet Explorer provided by VFA, Inc.

Task Detail for: 151102000122 [Valves, angle, iron body, 125 lb flanged, 8" size]

Crew Detail for crew: Q2 in Berkeley, California @ Standard labor rates

**Labor Details**

Trade Label	Description	Rank	Quantity	Bare Rate	O/P Rate
PLUM	Plumbers	Journeyman	2.0	\$50.41	\$75.68
PLUMA	Plumbers	Apprentice	1.0	\$40.33	\$60.54

**Equipment Details**

Equipment Label	Description	Quantity	Bare cost/day @ Crew Unit Cost	O/P cost (as above)
-----------------	-------------	----------	--------------------------------	---------------------

Daily Output: 2.5 Ea.

CCI:BERKELEY CA  
Resource:Standard

Add Close

Trusted sites

**Uniformat II  
Level 4 Unit  
Cost**

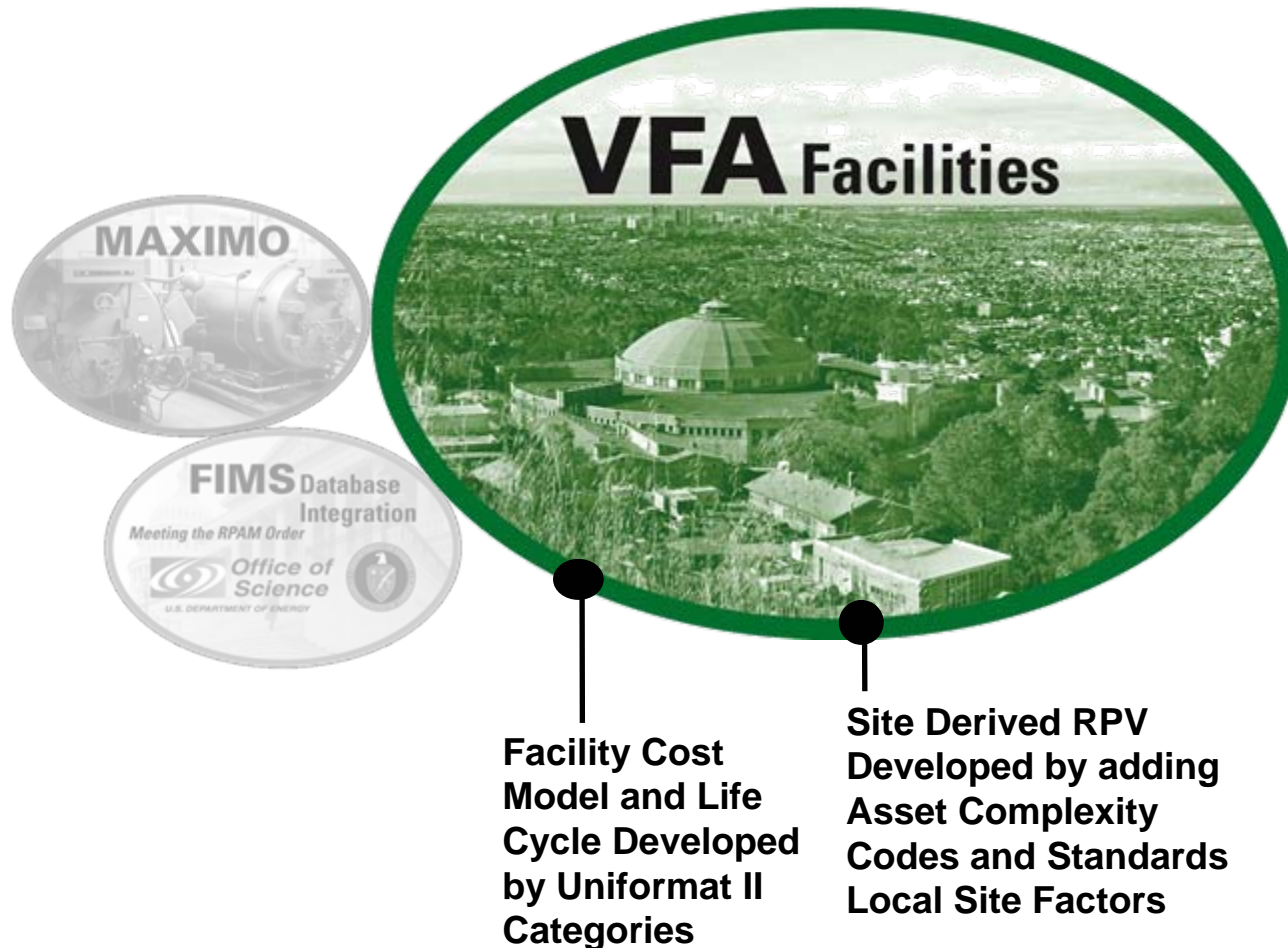
**City Cost Index  
(Localization)**

**Labor and Material Breakdown**

**Labor Breakdown by Trade**

# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS





# RS Means and RPV

## Uniformat Level -2 Cost Breakdown

Adding Local Site Factor  
Calculations for Site Derived  
RPV

Asset Complexity Increases  
Site Factor Cost

COST MODEL	UNIFORMAT CATEGORY	MATERIALS & LABOR	GEO FACTOR (17%)	OVERHEAD (5%)	PROFIT (10%)	GENERAL REQUIREMENTS (10%)	TOTAL COST PER UNIT
055Medical Research Lab	Ceiling Finishes	4.34	0.74	0.25	0.51	0.51	6.34
	Communications and Security	2.37	0.40	0.14	0.28	0.28	3.47
	Controls and Instrumentation	2.50	0.43	0.15	0.29	0.29	3.66
	Conveying	0.93	0.16	0.05	0.11	0.11	1.36
	Cooling Generating Systems	2.29	0.39	0.13	0.27	0.27	3.35
	Distribution Systems	19.82	3.37	1.16	2.32	2.32	28.99
	Electrical Service and Distribution	5.35	0.91	0.31	0.63	0.63	7.83
	Emergency Light and Power Systems	1.63	0.28	0.10	0.19	0.19	2.39
	Exterior Doors	1.43	0.24	0.08	0.17	0.17	2.09
	Exterior Walls	8.03	1.37	0.47	0.94	0.94	11.75
	Exterior Windows	3.73	0.63	0.22	0.44	0.44	5.45
	Fire Protection	3.76	0.64	0.22	0.44	0.44	5.5
	Floor Finishes	5.37	0.91	0.31	0.63	0.63	7.85
	Heat Generating Systems	2.29	0.39	0.13	0.27	0.27	3.35
	Interior Doors	3.32	0.56	0.19	0.39	0.39	4.86
	Lighting and Branch Wiring	8.72	1.48	0.51	1.02	1.02	12.76
	Other Electrical Systems	7.82	1.33	0.46	0.92	0.92	11.44
	Partitions	3.64	0.62	0.21	0.43	0.43	5.32
	Plumbing	5.20	0.88	0.30	0.61	0.61	7.6
	Plumbing Fixtures	3.59	0.61	0.21	0.42	0.42	5.25
	Roofing	3.13	0.53	0.18	0.37	0.37	4.58
	Stairs	0.73	0.12	0.04	0.09	0.09	1.07
	Substructure	11.32	1.92	0.66	1.32	1.32	16.55
	Superstructure	11.32	1.92	0.66	1.32	1.32	16.55
	Wall Finishes	2.93	0.50	0.17	0.34	0.34	4.28
	TOTALS	125.57	21.35	7.35	14.69	14.69	183.64

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
	Asset Information				VFA CRV Cost Model			FIMS Required Facility Site Factors							Totals	
	Asset Number	Program Use	Complexity	Asset Size (gsf)	Materials, Labor, CCI to Replace Current Facility	Current Codes/ Standards (Priority 7)	Contractor Fees (Overhead, Profit, General Conditions)	A/E Contract Award	Engr Support	Inspection	Project Mgmt	Const Mgmt	Seismic Cost	Site Burden	Total All Site Factor Facility Fees	DOE Facility RPV
Calculations					Sum of (material + labor x geo 17%) x gsf	Materials, Labor, CCI minus 15% Contractor Overhead & Profit	Column F+ G total x 25%	Column F+G total x Complexity % III=12% II=10% I=8%	Column F+G total x Complexity % III=3% II=2% I=1%	Column F+G total x Complexity % III=3% II=2%, I=1%	Column F+G total x Complexity % III=3% II=2%, I=1%	Column F+G total x Complexity % III=3% II=2%, I=1%	45% x Substructure & Superstructure Costs from Uniformat II Categories	Columns (FThru N) totals x Burden%	Sum of Columns I-O	Sum of Columns F, G, H, & P
FIMS RPV Standard Format Type of Cost -Line Number					Lines 1 & 2	VFA	Lines 4 & 6	Line 9	Line 10	Line 11	Line 12	Line 13	VFA	Line 17		
Bldg	55	Research	II	19028	\$2,795,442	\$60,252	\$713,923	\$285,569	\$57,114	\$57,114	\$57,114	\$57,114	\$122,445	\$206,690	\$843,160	\$4,412,777

# RS Means and RPV

## Complexity Types

### Low - I

**Basic:** Buildings with basic utility systems designed to support non-complex program use. Typical examples of this type include classrooms, general administration offices and libraries. The HVAC, electrical and plumbing systems are designed to support teaching and administrative support programs.

### Best - II

**Complex:** Buildings with complex utility systems designed to support research and development program use. Typical examples include biological laboratories, high energy physics labs and other facilities with highly developed system needs. These buildings have complex HVAC systems and usually include high strength power and plumbing with piped support utilities such as, compressed air, gasses and DI water. These buildings are designed for uninterrupted operations often having stand-alone emergency power generation and redundant built-in equipment for temperature control and ventilation.

### High - III

**Highly Complex:** Buildings designed specifically for highly complex activities and program use. Buildings labeled **Highly Complex** meet the following criteria: (1) The building must have utility systems and associated infrastructure that are *substantially* more complex than buildings in the complex category. (2) The building must be at least 75% highly complex. *Highly Complex* buildings typically include one or more of the following characteristics: *\*Critical tolerance power and temperature control systems (E.g., Accelerator and Cyclotron Facilities)* *\*Clean rooms that are P3 or P4 rated.* *\*High Efficiency Particulate Air (HEPA) filtration.* *\*ACH (Air Changes per Hour) of 12 or greater.* *\*Pathogen free controlled space such as animal surgery or diseased animal research labs.*

# RS Means and RPV

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Adding Local Site Factor  
Calculations for Site Derived  
RPV

Asset Complexity Increases  
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Material, Labor, & Geo

Overhead, Profit, General  
Conditions

Substructure & Superstructure  
Seismic Cost

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# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



## Business Process — Facilities Capital Planning — Work Management, and FIMS Planning & Prioritizing Process



## EXAMPLE OF FCI PROJECTION REPORT BUILDING 02

Year	Replacement Cost	Renewal Cost	Backlog Deterioration	Total New Liability	New Backlog Total	Net Plant Value	Funding	Funding Reserve	FCI
2005	\$30,749,606	\$0	\$0	\$2,109,910	\$2,109,910	\$28,639,696	\$0	\$0	0.0686
2006	\$32,194,839	\$842	\$44,182	\$45,023	\$2,149,142	\$30,045,697	\$104,957	\$0	0.0668
2007	\$33,707,998	\$27,368	\$45,003	\$72,371	\$2,187,402	\$31,520,596	\$135,121	\$0	0.0649
2008	\$35,292,276	\$161,870	\$45,804	\$207,675	\$2,224,510	\$33,067,765	\$273,374	\$0	0.063
2009	\$36,951,014	\$169,478	\$46,581	\$216,060	\$2,260,275	\$34,690,739	\$284,847	\$0	0.0612
2010	\$38,687,714	\$33,012	\$47,330	\$80,342	\$2,294,488	\$36,393,226	\$152,362	\$0	0.0593
2011	\$40,506,039	\$138,297	\$48,047	\$186,344	\$2,326,923	\$38,179,115	\$261,749	\$0	0.0574
2012	\$42,409,824	\$1,466,891	\$48,726	\$1,515,617	\$2,357,340	\$40,052,485	\$1,594,566	\$0	0.0556
2013	\$44,403,088	\$1,889,201	\$49,363	\$1,938,564	\$2,385,475	\$42,017,614	\$2,021,224	\$0	0.0537
2014	\$46,490,036	\$1,038,280	\$49,952	\$1,088,232	\$2,411,047	\$44,078,989	\$1,174,777	\$0	0.0519
2015	\$48,675,070	\$568,777	\$50,487	\$619,264	\$2,433,753	\$46,241,316	\$709,877	\$0	0.05

\$568,777	\$50,487	\$619,264	\$2,433,753	\$46,241,316	\$709,877
	Ext	Interio	Pho	Ext	System Group
D5092	Emergency Light and Power Systems		\$338,756	\$3,568	0.01
E	Equipment and Furnishings		\$2,485,354	\$0	0.00

## Unifomat II Level-2 Electrical Elements



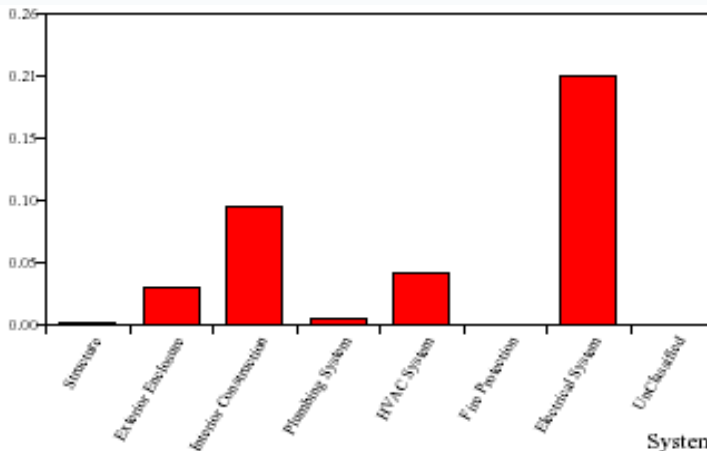
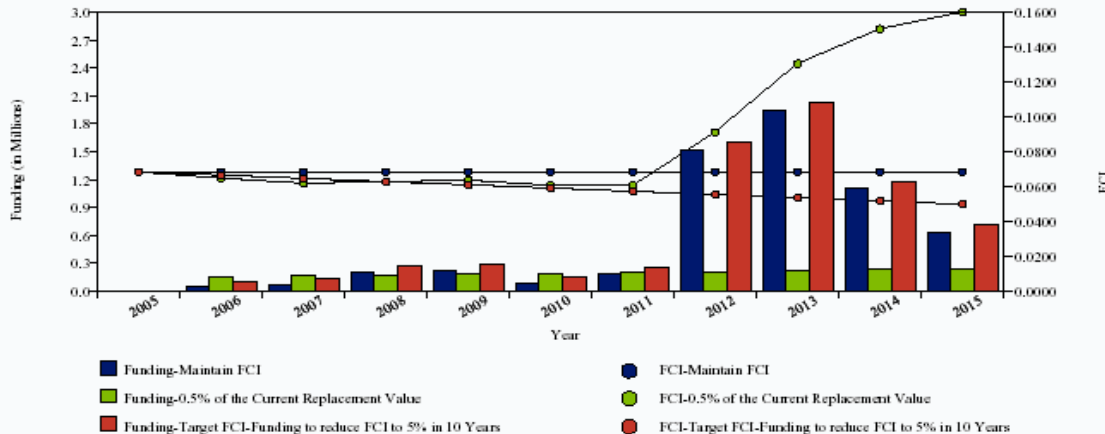
# TOTAL INTEGRATION

## Business Process — Facilities Capital Planning — Work Management, and FIMS Planning & Prioritizing Process

VFA

Funding/FCI Report

EXAMPLE OF FCI PROJECTION REPORT BUILDING 02



VFA

SCI Report

REGION: ALL REGIONS  
CAMPUS: Berkeley National Labs DOE RPIV  
ASSET NAME: Advanced Materials Lab  
ASSET NUMBER: 002

Uniform Code	Uniform Name	Total System Cost	Total Requirement Cost	SCI
A	Substructure	\$2,354,997	\$0	0.00
B10	Superstructure	\$2,354,997	\$3,172	0.00
B2010	Exterior Walls	\$2,418,460	\$75,809	0.03
B2020	Exterior Windows	\$871,132	\$0	0.00
B2030	Exterior Doors	\$375,060	\$43,014	0.12
B30	Roofing	\$333,610	\$0	0.00
C1010	Partitions	\$1,352,451	\$0	0.00
C1020	Interior Doors	\$690,176	\$124,288	0.18
C20	Stairs	\$240,565	\$0	0.00
C3010	Wall Finishes	\$527,430	\$216,548	0.45
C3020	Floor Finishes	\$1,115,751	\$138,200	0.12
C3030	Ceiling Finishes	\$1,031,705	\$9,396	0.01
D10	Conveying	\$299,306	\$0	0.00
D20	Plumbing	\$1,040,281	\$6,639	0.01
D2010	Plumbing Fixtures	\$746,121	\$2,047	0.00
D3020	Heat Generating Systems	\$561,735	\$0	0.00
D3030	Cooling Generating Systems	\$475,116	\$0	0.00
D3040	Distribution Systems	\$4,208,292	\$247,636	0.06
D3060	Controls and Instrumentation	\$519,712	\$0	0.00
D40	Fire Protection	\$781,283	\$0	0.00
D5010	Electrical Service and Distribution	\$1,472,516	\$38,604	0.03
D5020	Lighting and Branch Wiring	\$1,863,587	\$892,402	0.48
D5030	Communications and Security	\$491,411	\$245,714	0.50
D5090	Other Electrical Systems	\$1,792,405	\$42,783	0.02
D5092	Emergency Light and Power	\$338,756	\$3,568	0.01
	Equipment and Furnishings	\$2,485,354	\$0	0.00

Environmental and Safety Issues

Division Communication & Input – Scientific Priorities

System Priority – Consequence of Failure, Downtime Cost

Reliability - Means Times between Failures,  
Root Cause Analysis

Maintenance Reports – Equipment Operating Costs

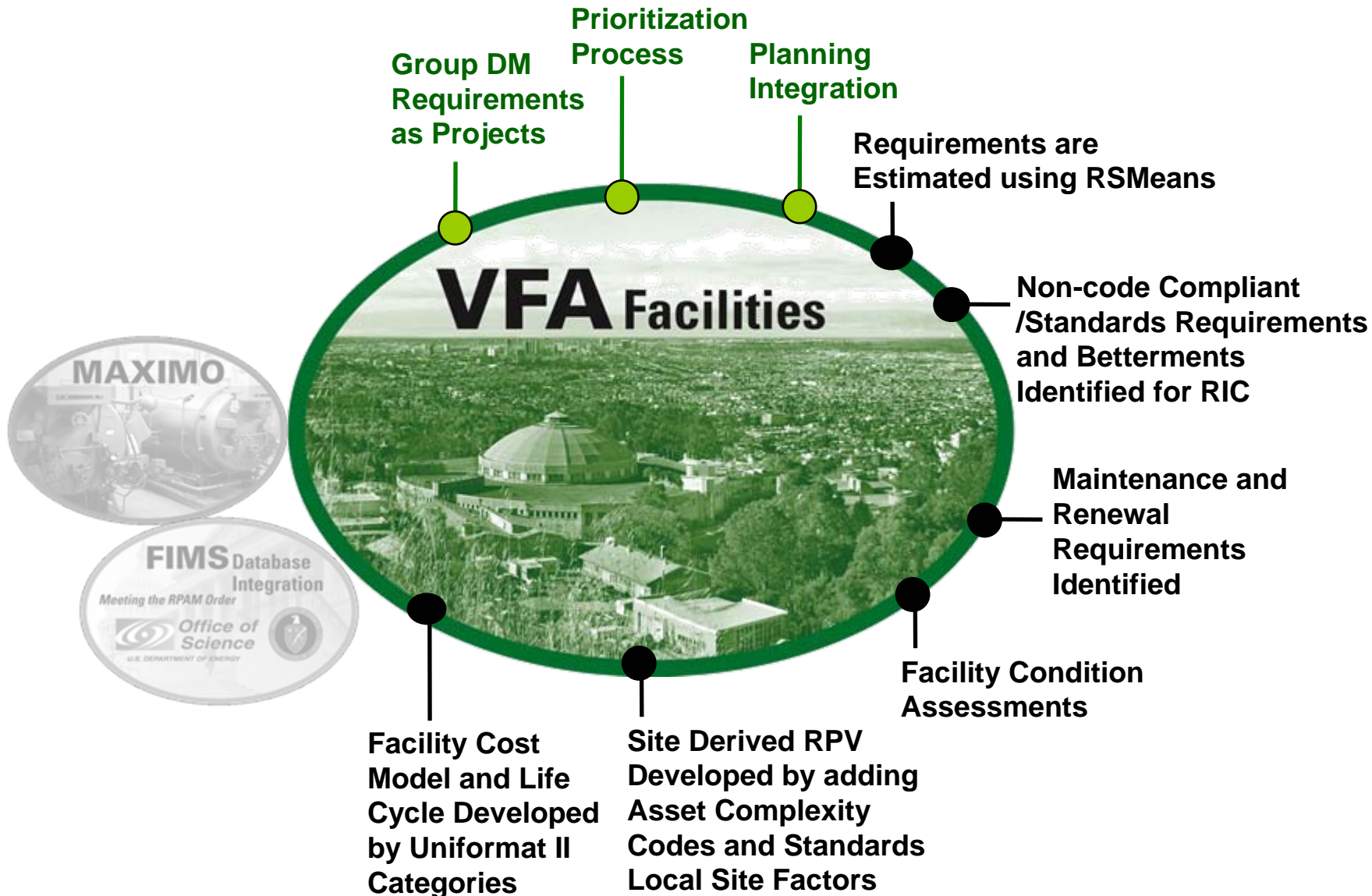
Rehab & Improvement Requirements – Major Renovations

Up-Grades/Betterments

Standards/Codes

# TOTAL INTEGRATION


Business Process — Facilities Capital Planning — Work Management, and FIMS



# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

## Grouping DM Requirements as Projects






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AssetsFunding**Projects**ReportsImportSecurityConfigure

«

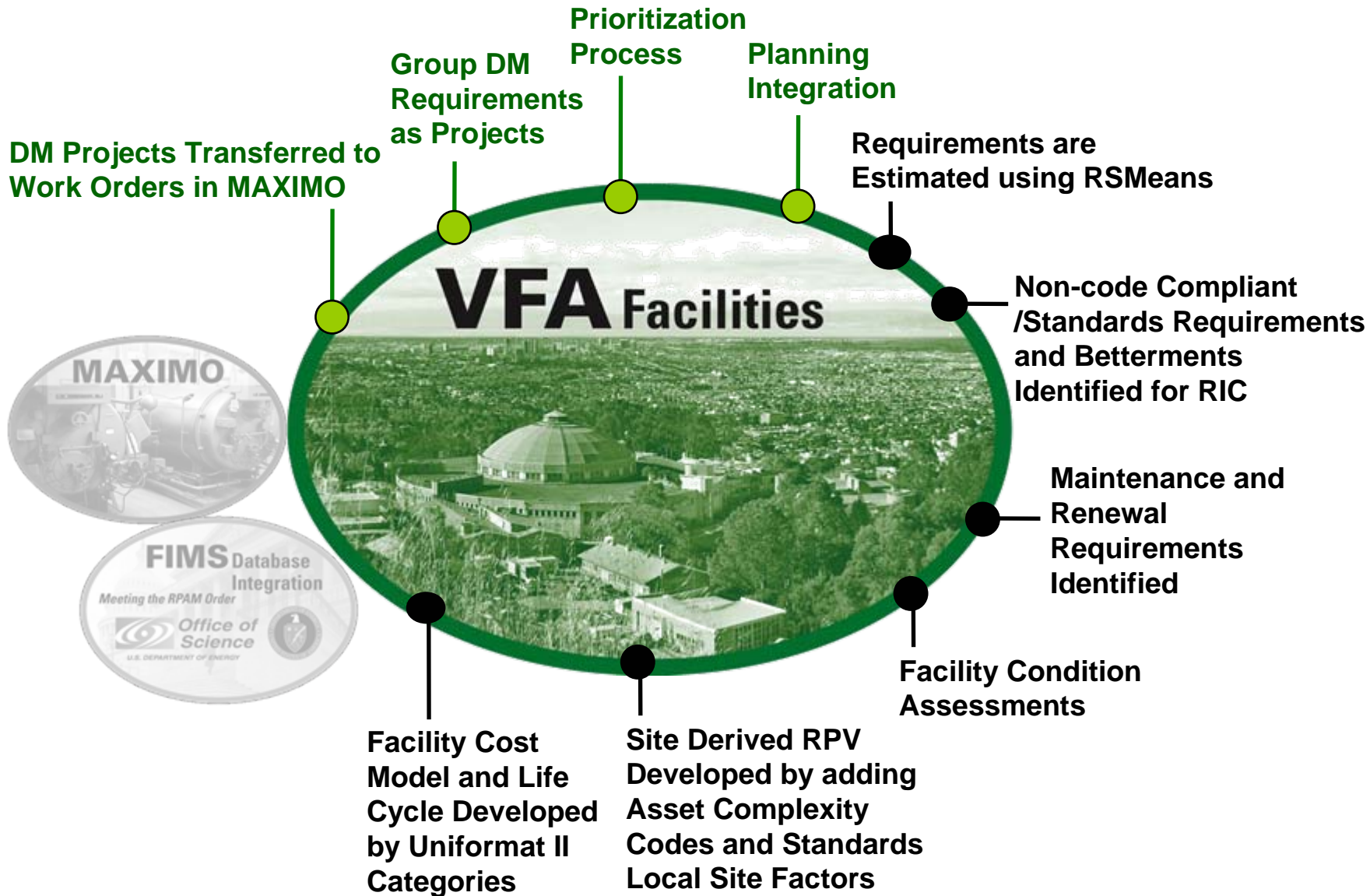
MII / Electrical DM 002 (Test)

    
Include Exclude Save

	Cls	Code	Description	Cost	Adjustment	Requirement
Groups						
Projects						
Requirements	▶ U	161366209000	Outlet boxes plastic min labor/equip charge	652.12		GFCI Outlets: Improper Covers
Line Items	U	161366201540	Outlet boxes, PVC, duplex receptacle cover, FS, 2 gang	227.52		GFCI Outlets: Improper Covers
Funding Sources	U	165203009000	Exterior fixtures min labor/equip charge	869.50		Exterior Lighting: Non Functional
Overheads	U	165203001170	Exterior fixts, with lamps, wall pack, high pressure sodium, 150 watt	2121.90		Exterior Lighting: Non Functional
Intersections	U	165303200240	Exit light clg or wall mount, L.E.D. battery unit, single face	1088.24		Exit Signs: Insufficient
Fiscal Plans	U	161322050500	Conduit to 15' H, incl 2 termn, 2 elb&11 bm CLP per 100', alum 3/4" dia	2006.00		Exit Signs: Insufficient
Project Calendar	U	161366000021	Box, 4" octagon pressed steel	153.20		Exit Signs: Insufficient
	U	161209000020	wire, 600 volt, type THW, copper, solid, #14	217.92		Exit Signs: Insufficient
	U	160703201950	Hangers, conduit supports, riser clamps, conduit, 3/4" diameter	102.92		Exit Signs: Insufficient
	U	161322100300	Conduit to 15' H, incl couplings only, elec metallic tubing, 2" dia	11460.00		Electrical Equipment: Blocked
	U	161209000161	wire, 600 volt, type THW, copper, stranded, #6	3900.00		Electrical Equipment: Blocked
	U	162702009000	Minimum labor/equipment charge	3912.66		Electrical Equipment: Blocked
	U	160553001550	Electrical demo, transformer, 3 phase to 600v, primary, 300 kVA	6124.62		Electrical Equipment: Blocked

# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

## VFA AssetFusion to MAXIMO Intergration

http://facility.vfafacility.com - VFA.facility - facility.vfafacility.com - Microsoft Internet Explorer

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**Assets** | **Funding** | **Projects** | **Reports** | **Import** | **Security** | **Configure**

MII / Projects

**New** | **List** | **Save** | **Delete** | **Print** | **CMMS**

**Project Info**

Group: MII  
Name:   
Status: Sent to CMMS  
Number:   
Type: [none selected]  
Priority: Mission Critical  
Manager: Unknown  
Resource: [none selected]

**Cost**

Construction: \$32,837  
Overhead: \$12,472  
Total: \$45,309  
Actual: \$

**Schedule**

Planned Start Date:   
Planned End Date:   
Commit Date: 5/27/2005  
Actual Start Date:   
Actual End Date:

**CMMS Information**

Work Order ID:  
Status:   
Date Transferred: 2005-05-27 11:56:38  
Date Last Updated:

**Plan**

Start Fiscal Year:  
End Fiscal Year:  
Fiscal Plan:  
Fiscal Plan Status:

**Description**

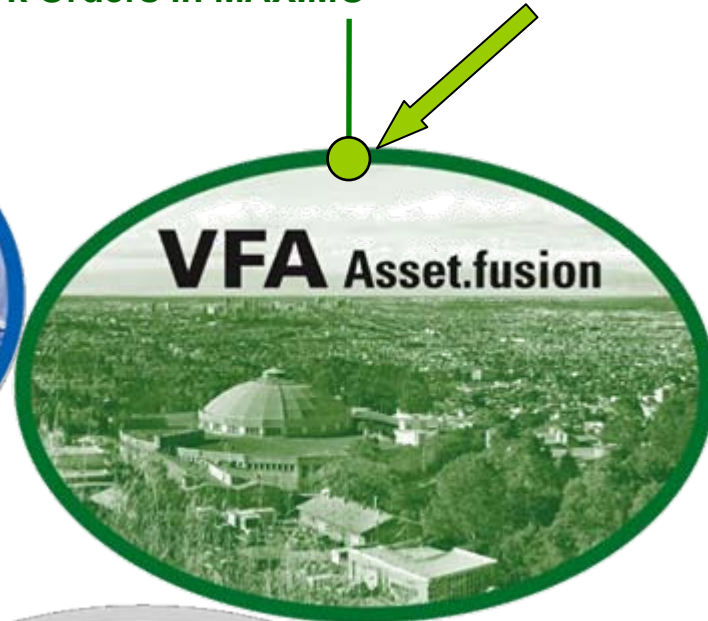
Correct electrical system safety and functionality for extended operation hours at Bldg 002.



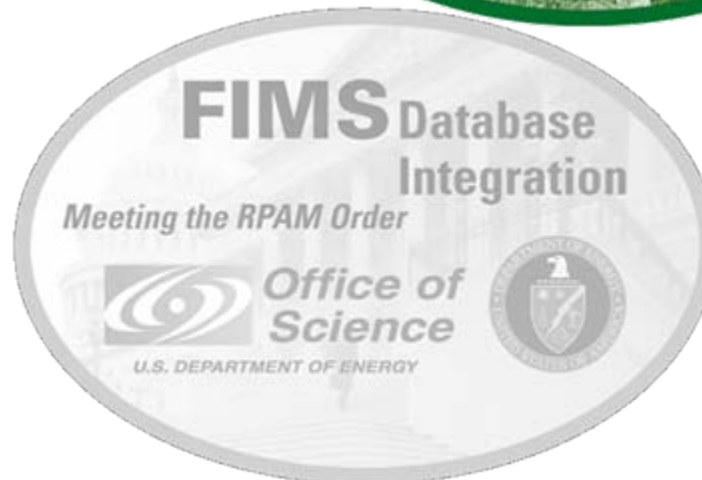
# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

DM projects transferred to  
Work Orders in MAXIMO



Asset.fusion Generates  
MAXIMO generates DM  
Work Orders and Assigns  
Resource Tasks, Materials,  
and Tools for Work  
Execution



Assets

Funding

Projects

Reports

Import

Security

Configure

MII / Projects



New



List



Save



Delete



Print



CMMS

**Project Info**

Group: MII

Name: Electrical DM 002 (Test)

Status: In CMMS

Number: 003

Type: [none selected]

Priority: Mission Critical

Manager: Unknown

Resource: [none selected]

**Cost**

Construction: \$32,837

Overhead: \$12,472

Total: \$45,309

Actual: \$ 0

**Schedule**

Planned Start Date:

Planned End Date:

Commit Date: 5/27/2005

Actual Start Date:

Actual End Date:

**CMMS Information**

Work Order ID: WL8401

Status: WAPPR

Date Transferred: 2005-05-27 11:56:38

Date Last Updated: 2005-05-27 11:57:14

**Plan**

Start Fiscal Year:

End Fiscal Year:

Fiscal Plan:

Fiscal Plan Status:

**Description**

Correct electrical system safety and functionality for extended operation hours at Bldg 002.

# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

## VFA AssetFusion to MAXIMO Intergration



### *Work Order-Project Detail Report*

**Project Name** Electrical DM 002 (Test)

**Project Description** Correct electrical system safety and functionality for extended operation hours at Bldg 002.

**Estimated Project Cost** \$45,309

**Work Order ID** WL8401 **Parent WO**

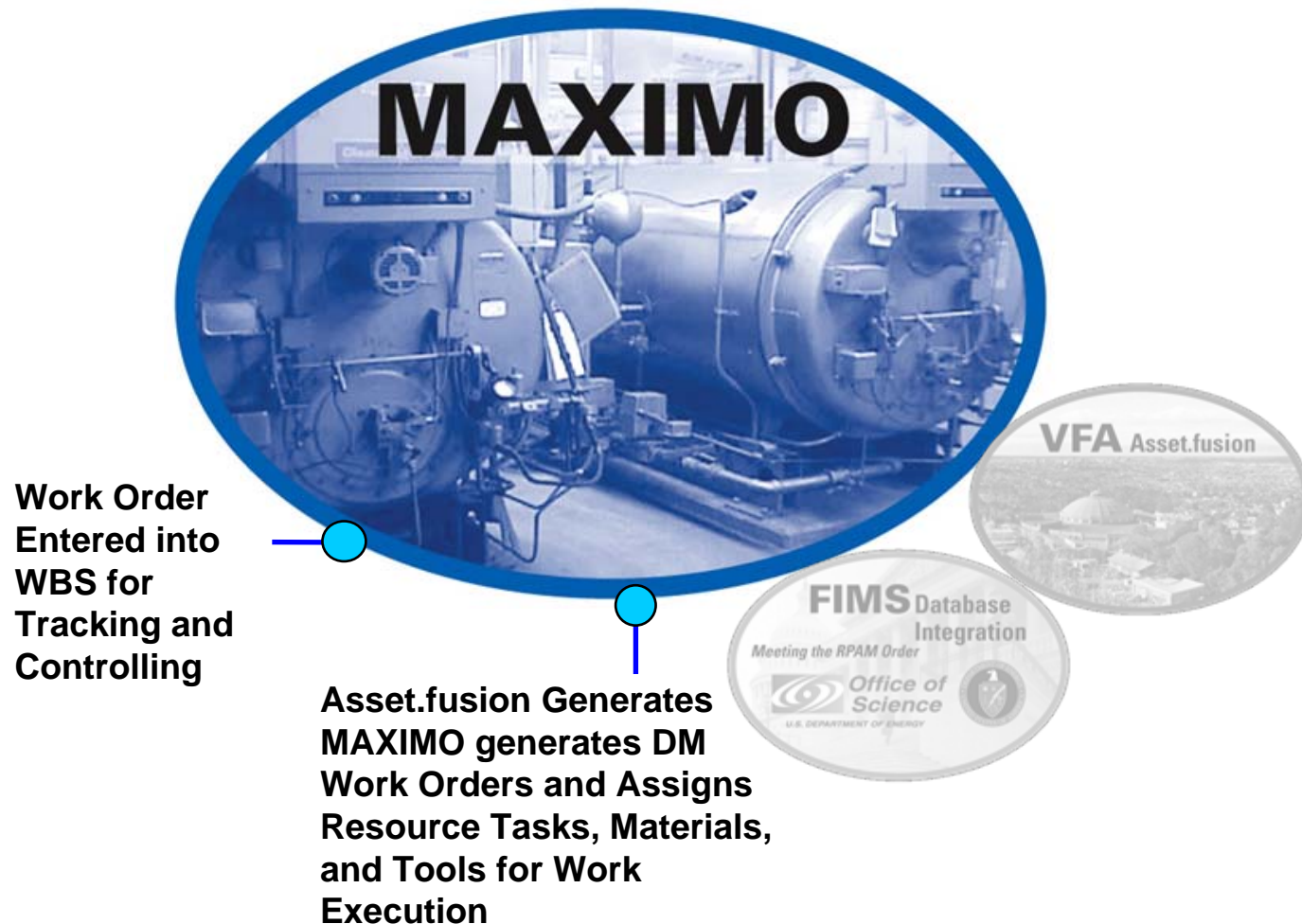
**Project Details**

Work Order ID	Name	CMMS Status	Estimated Cost	Actual Cost
WL8406	Electrical Equipment: Blocked	WAPPR	\$25,397	\$0
WL8404	Exit Signs: Insufficient	WAPPR	\$3,568	\$0
WL8402	Exterior Lighting: Non Functional	WAPPR	\$2,991	\$0
WL8408	GFCI Outlets: Improper Covers	WAPPR	\$880	\$0

**Children WO**

# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



# TOTAL INTEGRATION

## Business Process — Facilities Capital Planning — Work Management, and FIMS

### MAXIMO Work Order WBS

Module: WOTRACK Report: lbl_wocontrol1_act Lawrence Berkeley Laboratory Work Orders Schedule Variance Report As of 05-27-2005 As requested by: kafletcher										
Work Order - Description			ESTIMATED	ACTUAL	Hours	Material Cost	Labor Cost	Tool Cost	Service Cost	Total Cost
Status	Supervisor	GL Account	VARIANCE		(%)	(%)	(%)	(%)	(%)	(%)
WL8370 - WBS Test - Electrical DM 002 (Test)	Fletcher, Kenneth A	379812			452.58	\$9,975.62	\$35,333.91	\$0.00	\$0.00	\$45,309.53
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	100%	100%	N/A	N/A	100%
WL8374 - Construction	Taberski, Charles M	379812			452.58	\$9,975.62	\$35,333.91	\$0.00	\$0.00	\$45,309.53
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8379 - Facilities Engineering and Design Services	Gupta, Mahesh C	379812			1.00	\$0.00	\$3,940.44	\$0.00	\$0.00	\$3,940.44
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8380 - Project Management Services	Taberski, Charles M	379812			1.00	\$0.00	\$985.11	\$0.00	\$0.00	\$985.11
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8381 - Inspection Services	Lopez, William	379812			1.00	\$0.00	\$656.74	\$0.00	\$0.00	\$656.74
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8387 - Construction Activities	Waters, Stephen	379812			448.58	\$9,653.62	\$23,184.22	\$0.00	\$0.00	\$32,837.84
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8388 - LNBL Crafts	Waters, Stephen	379812			448.58	\$9,653.62	\$23,184.22	\$0.00	\$0.00	\$32,837.84
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8401 - Electrical DM 002 (Test)	Waters, Stephen	379812			448.58	\$9,653.62	\$23,184.22	\$0.00	\$0.00	\$32,837.84
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8402 - Exterior Lighting: Non Functional	Begley, Larry E	379812			32.45	\$1,306.75	\$1,684.80	\$0.00	\$0.00	\$2,991.55
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8404 - Exit Signs: Insufficient	Begley, Larry E	379812			47.38	\$1,108.21	\$2,460.14	\$0.00	\$0.00	\$3,568.35
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8406 - Electrical Equipment: Blocked	Murphy, James W	379832			354.28	\$7,109.58	\$18,288.17	\$0.00	\$0.00	\$25,397.75
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8408 - GFCI Outlets: Improper Covers	Murphy, James W	379832			14.47	\$129.08	\$751.11	\$0.00	\$0.00	\$880.19
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8392 - Supplemental Work - Change Orders	Taberski, Charles M	379812			0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					N/A	N/A	N/A	N/A	N/A	N/A
WL8396 - Construction Contingency	Taberski, Charles M	379812			1.00	\$0.00	\$6,567.40	\$0.00	\$0.00	\$6,567.40
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					100%	N/A	100%	N/A	N/A	100%
WL8410 - Procurement Burdens					0.00	\$322.00	\$0.00	\$0.00	\$0.00	\$322.00
WAPPR					0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					N/A	N/A	N/A	N/A	N/A	100%

Construction Level

Overhead

VFA Project  
Parent

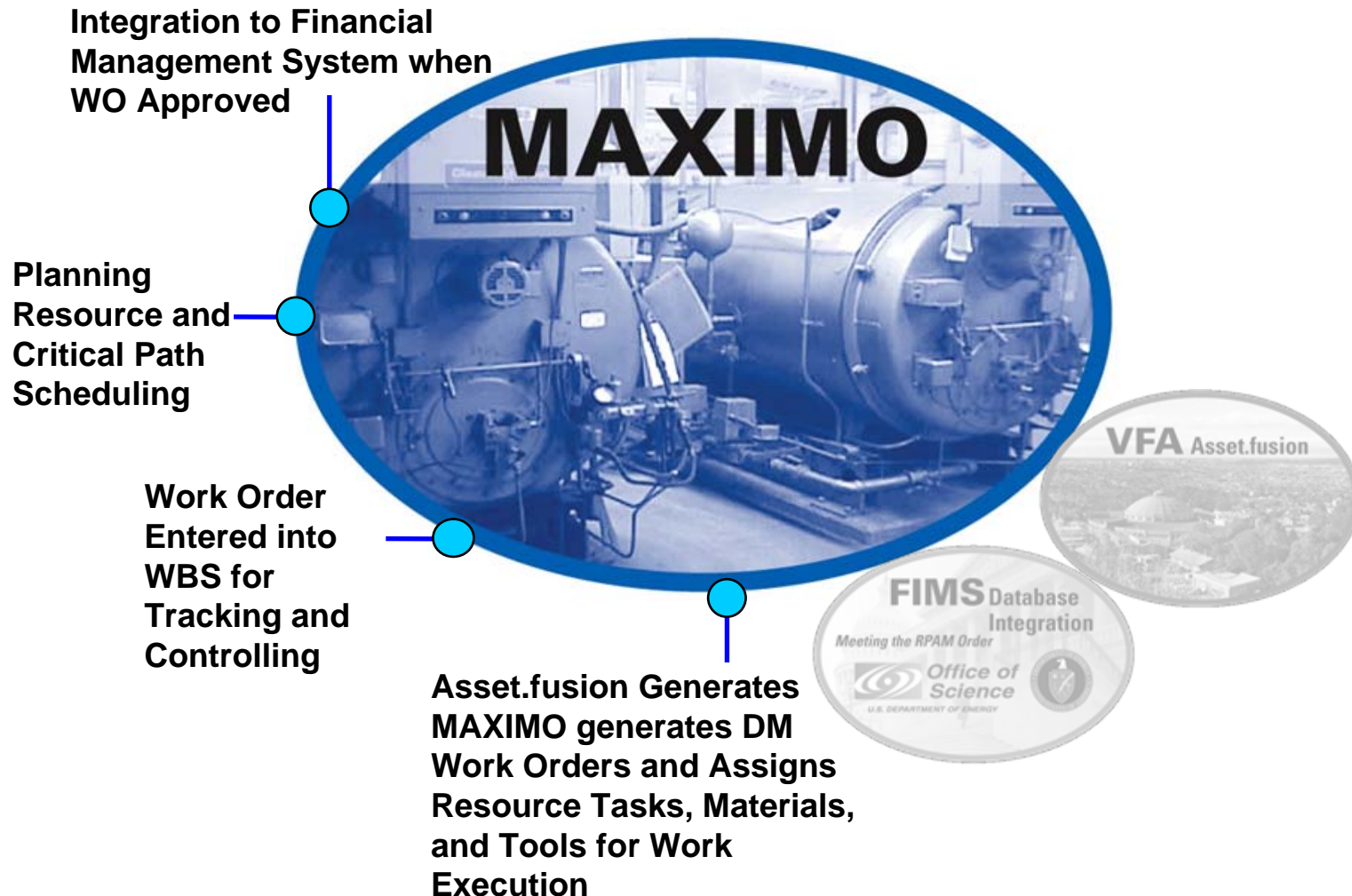
VFA Requirements  
Children

Overhead & Burdens

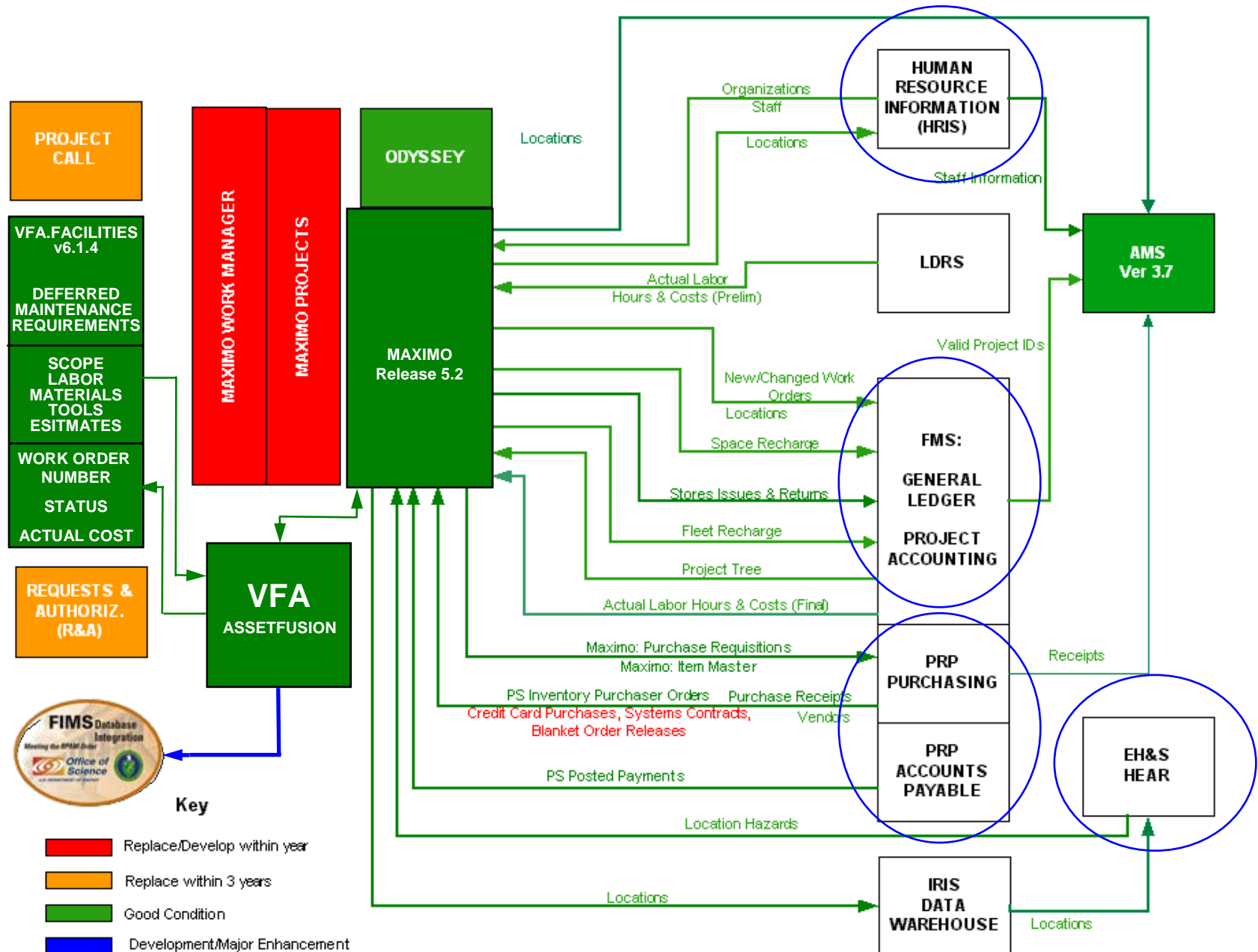


# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



# Facilities Systems Integration



# TOTAL INTEGRATION

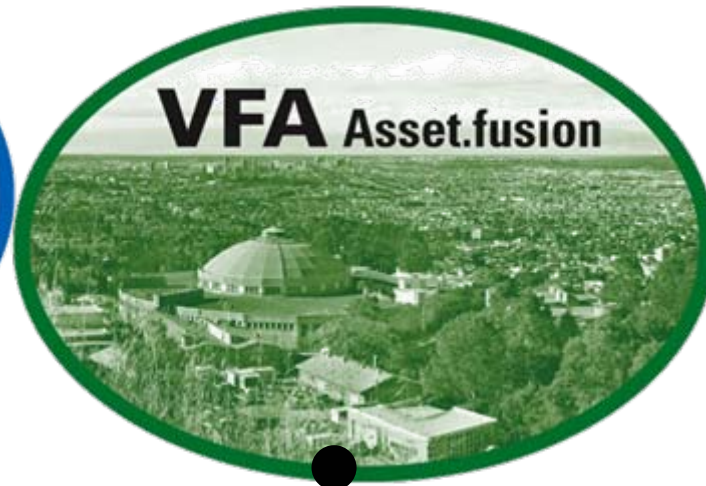
Business Process — Facilities Capital Planning — Work Management, and FIMS



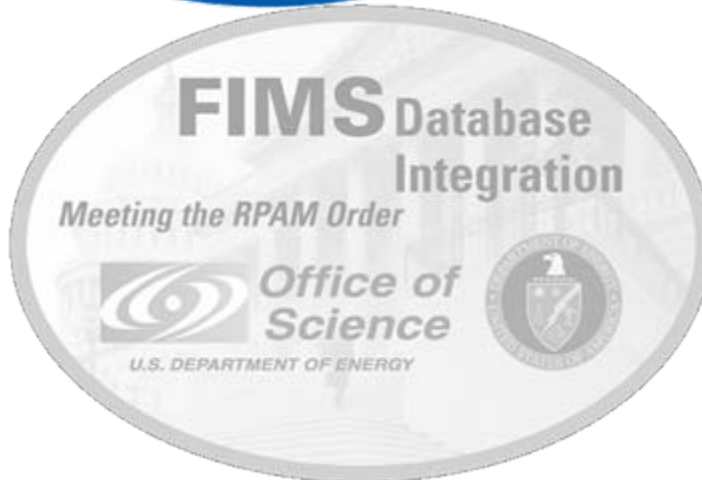
# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

Reports Work Order Status and  
Actual DM Requirement Cost  
back to VFA Using Asset.fusion



Actual Cost are stored  
and Completed DM  
Requirements removed  
(archived) from  
VFA database



# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

## MAXIMO to VFA AssetFusion Intergration

VFA

Home

My Profile

Favorites

Help

Feedback

Logout

Assets

Funding

Projects

Reports

Import

Security

Configure

<<

MII / Electrical DM 002 (Test) / Requirements

Groups

Projects

Requirements

Line Items

Funding Sources

Overheads

Intersections

Add


Detail

Remove

Filter

Close

Asset Name	Asset Number	Name ▲	Cost	Status	Priority	CMMS Status	Work Order ID
Advanced Materials Lab	002	Electrical Equipment: Blocked	\$25,397	In CMMS	2- Potentially Critic	INPRG	WL8406
Advanced Materials Lab	002	Exit Signs: Insufficient	\$3,568	In CMMS	1- Currently Critic	INPRG	WL8404
Advanced Materials Lab	002	Exterior Lighting: Non Functional	\$2,991	In CMMS	3- Necessary - Nc	INPRG	WL8402
Advanced Materials Lab	002	GFCI Outlets: Improper Covers	\$880	Closed	7- Does Not Meet	COMP	WL8408

	
<b>Project Name</b>	Electrical DM 002 (Test)
<b>Project Description</b>	Correct electrical system s
<b>Estimated Project Cost</b>	\$45,309
<b>Work Order ID</b>	WL8401
<b>Project Details</b>	
<b>Work Order ID</b>	<b>Name</b>
WL8406	Electrical Equipment: Blocked
WL8404	Exit Signs: Insufficient
WL8402	Exterior Lighting: Non Functional
WL8408	GFCI Outlets: Improper Covers

VFA

Completed Work Order List Report

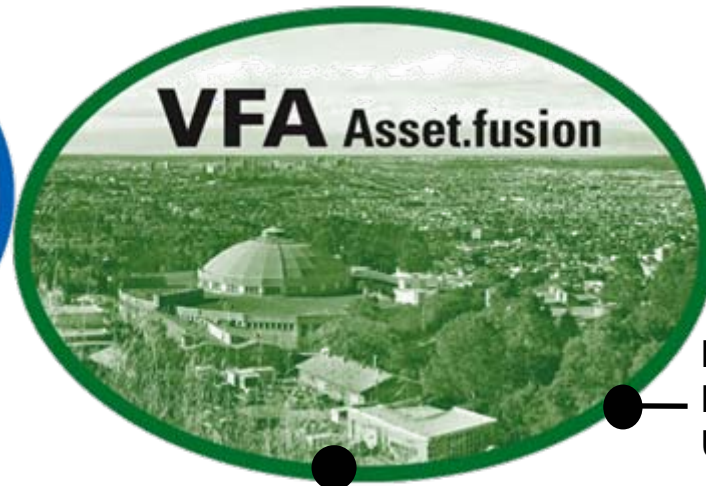
REGION: ALL REGIONS  
CAMPUS: Berkeley National Lab FCA  
ASSET NAME: Advanced Materials Lab  
ASSET NUMBER: 002

Work Order ID	Name	Status	Estimated Cost	Actual Cost	Variance	Date Transferred	Completion Date
WL8408	GFCI Outlets: Improper Covers	COMP	\$880	\$880	\$0	05/27/2005	06/01/2005
Total Estimated				\$880			
Total Actual				\$880			
Variance Total				\$0			
INPRG		\$3,568	\$0				
INPRG		\$2,991	\$0				
COMP		\$880	\$880				

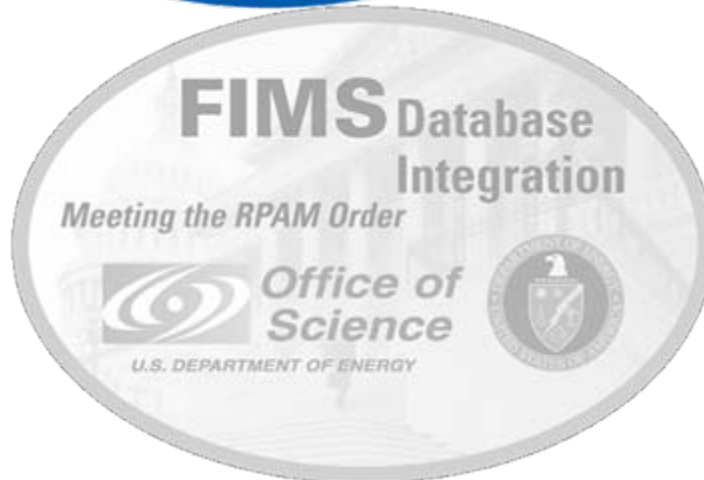


# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



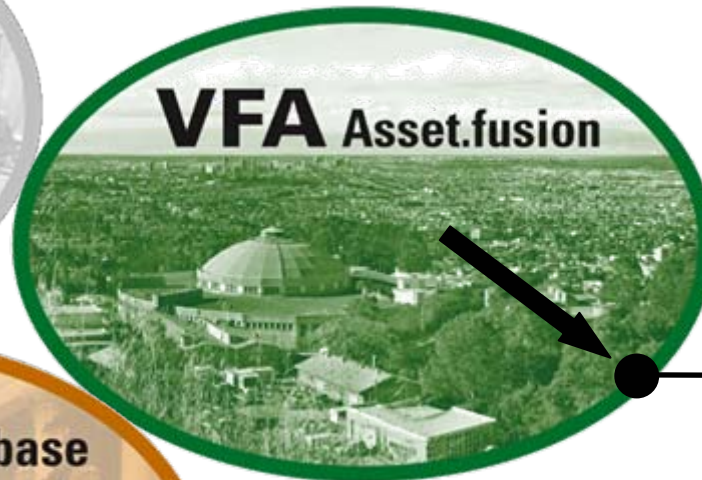
RS Means  
Escalation  
Update



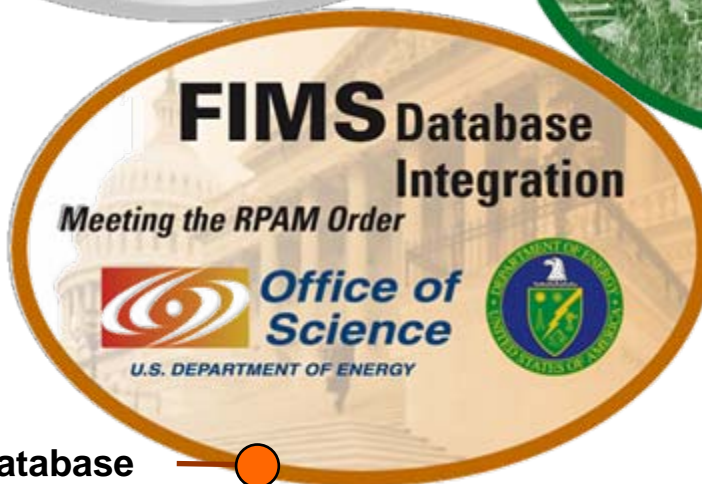
Actual Cost are stored  
and Completed DM  
Requirements removed  
(archived) from  
VFA database

# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS



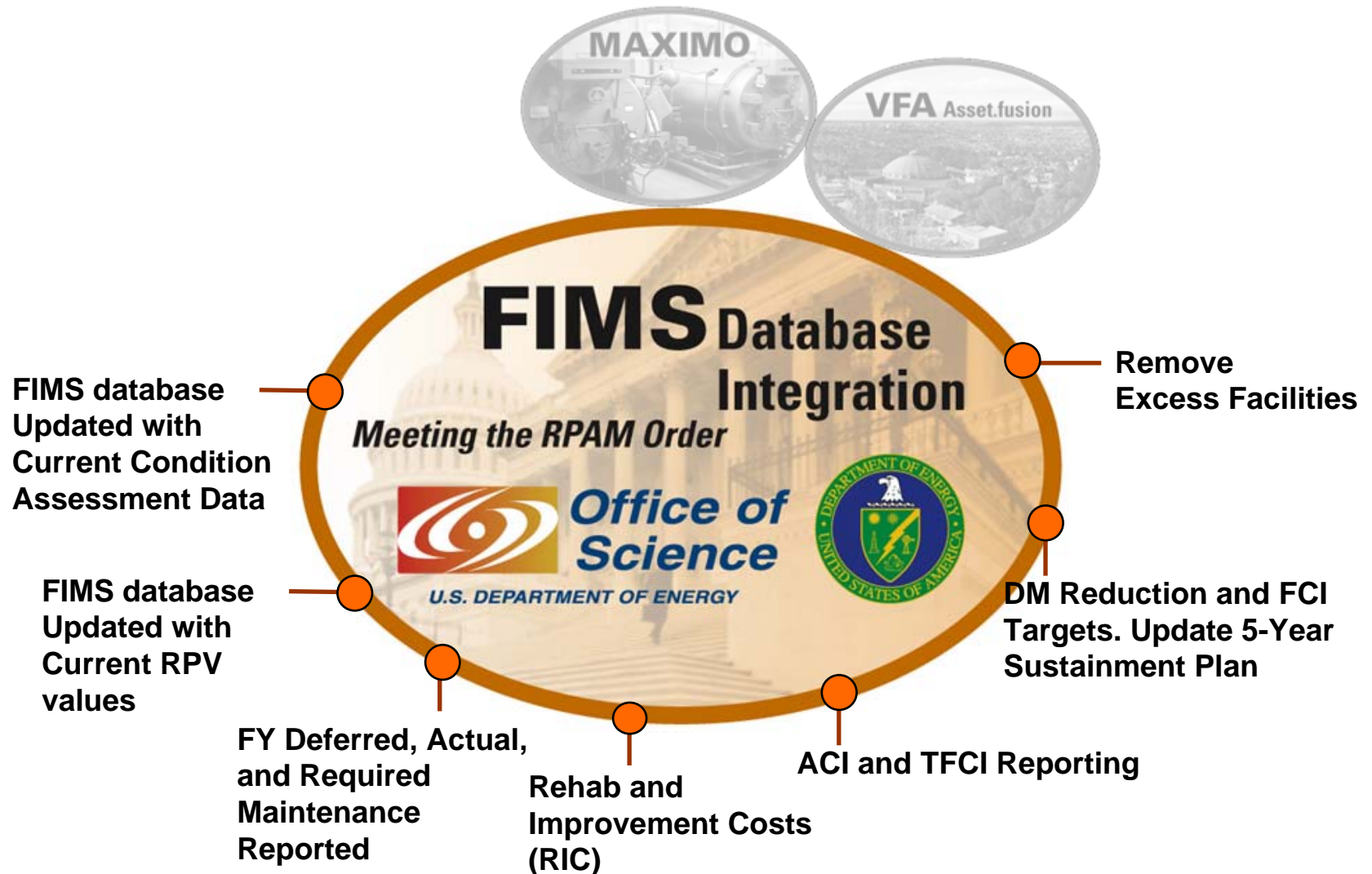
Updated Asset RPV  
and Condition  
Information



FIMS database  
Updated with  
Current Condition  
Assessment Data

# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS





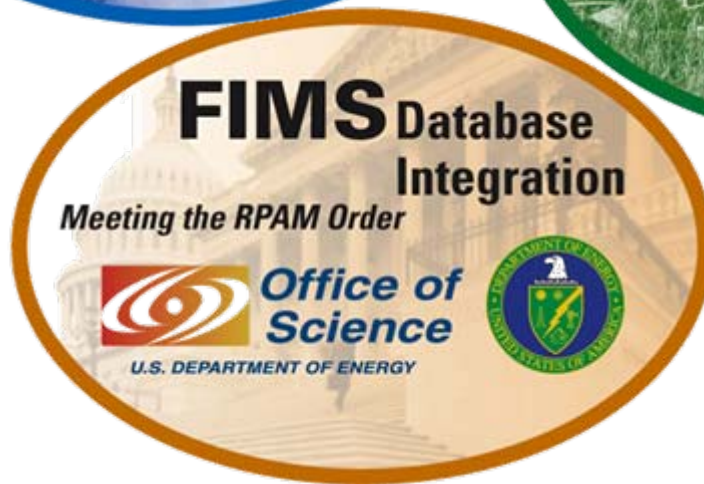
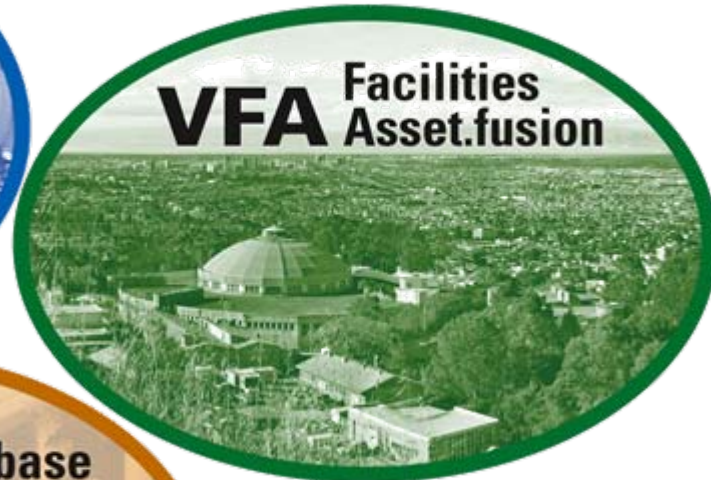
# TOTAL INTEGRATION

Business Process — Facilities Capital Planning — Work Management, and FIMS

Work Management Tracking & Controlling



Facilities Condition Assessment & Capital Planning



FIMS Real Property Asset Reporting

# Questions and Comments



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Facilities Division  
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510.484.5770